**CLAIMS**

1. Antibiotic 107891 complex comprising Factor A1 and Factor A2 being a white powder having the following characteristics:

(A) Mass spectrum recorded from a 0.2 mg/ml solution in methanol:water 80/20 (v/v) with trifluoracetic acid 0,1% (Fig. 1A and 1B) on a Thermofinnigan LCQ deca instrument fitted with an electrospray source, using Thermofinnigan calibration mix under the following electrospray conditions: spray voltage: 4.7 kV; capillary temperature: 220° C; capillary voltage: 3V; infusion mode 10 µl/min, showing two double protonated ions at m/z 1124 and m/z 1116, corresponding to the lowest isotope composition of Factor A1 and A2, respectively.

(B) Infrared spectrum (Fig. 2) recorded in KBr with a Bruker FT-IR spectophotometer model IFS 48, exhibiting absorption maxima at ($cm^{-1}$): 3263; 2929; 1661; 1533; 1402; 1114; 1026.

(C) U.V. spectrum (Fig. 3), performed in methanol:$H_2O$ 80:20 (v/v) with a Perkin-Elmer spectrophotometer Lambda 16, exhibiting two shoulders at 226 and 267 nm.

(D) $^1$H-NMR spectrum (Fig. 4) recorded at 600 MHz in the mixture methanol-d4:$H_2O$ (pH 4.3 HCl) 40:10 (v/v)at 40°C on a Bruker AMX 600 spectrometer applying a water suppression sequence using as internal standard the residual signal of methanol-d4 at 3.31 ppm, exhibiting the following signals [δ=ppm muliplicity; (attribution)]:0,93 d ($CH_3$), 0.98 d ($CH_3$), 1.07 t (overlapped $CH_3$'s), 1.18 t (overlapped $CH_3$'s), 1.26 s ($CH_3$), 1.30 t (overlapped $CH_3$'s), 1.62-1.74 m ($CH_2$), 1.78 d ($CH_3$), 1.80 d ($CH_3$), 2.03 m ($CH_2$), 2.24 m (CH), 2.36 m ($CH_2$), 2.72-3.8 m (peptidic alpha CH's), 3.8-5.2 m (peptidic alpha CH's), 5.53-6.08 s ($CH_2$), 5.62 d (CH double bond), 6.42 m (CH), 6.92 d (CH double bond), 7.0-7.55 m (aromatic CH's), 7.62-10.4 d and m (aromatic and peptidic NH's).

(E) $^{13}$C-NMR spectrum (Fig. 5) recorded in the mixture methanol-d4:$H_2O$ (pH 4.3 HCl) 40:10 (v/v) at 40°C on a Bruker AMX 600 spectrometer, using as internal standard the residual signal of methanol-d4 at 49.15 ppm, exhibiting the following

signals: [δ=ppm; (attribution)]: 13:6-23.2 (aliphatic $CH_3$'s), 26.16-73 (aliphatic $CH_2$'s and peptidic alpha CH's), 105-136 (aromatic and double bonds CH's and quartenary carbons), 164.3-176.3 (peptidic carbonyls).

(F) The acid hydrolysate in 6N HCl, (105°C, 24 h) showing the presence of the following amino acids, along with other unidentified peaks, after derivatization with 6-aminoquinolyl-N-hydroxysuccinimidyl carbamate: lanthionine, methyllanthionine, glycine, proline, valine, aspartic acid (hydrolysis product of asparagine), phenylalanine and leucine.

G) The acid hydrolysate in 4N methanesulfonic acid containing 0,2% (w/v) 3-(2-aminoethyl) indole as catalyst (115°C, 16h) showing the presence of 5-chlorotryptophan.

H) A basic ionizable function detected by acid/base titration performed with 0.01 N potassium hydroxide in 2-methoxyethanol (MCS):$H_2O$ 12:3 (v/v) containing a molar excess of 0.01 N hydrochloric acid.

2) Factor A1 of antibiotic 107891 being a white powder showing:

A) A doubly protonated ion at m/z 1124 corresponding to the lowest isotope composition in mass spectrum recorded from a 0,1 mg/ml solution in acetonitrile:water 50:50 (v/v) with acetic acid 0,5% (Fig. 6A and 6B) on a Thermofinnigan LCQ deca instrument fitted with an electrospray source, using Thermofinnigan calibration mix under the following electrospray conditions: spray voltage: 4.7 kV; capillary temperature: 250° C; capillary voltage: 8V; infusion mode 10 µl/min.

B) The exact mass of antibiotic determined by using a Bruker Daltonics APEX II, 4.7 Tesla spectrometer fitted with an electrospray source, corresponding to a molecular weight of 2246.71±0.06, calculated monoisotopic mass from $[M+2H]^{2+}$ at m/z 1124.36124 (accuracy 30 ppm).

C) When dissolved in $CD_3CN$:$D_2O$ (1:1), $^1H$ NMR spectrum (Fig.8) exhibiting the following groups of signals (in ppm) at 600

MHz using $CD_3CN$ as internal standard (1.94 ppm), [δ=ppm, multiplicity; (attribution)]: 0.84 d ($CH_3$), 0.89 d ($CH_3$), 0.94 t (overlapped $CH_3$'s), 1.1 d ($CH_3$), 1.13 d ($CH_3$), 1.15 t (overlapped $CH_3$'s), 149 m ($CH_2$), 1.69 d ($CH_3$), 1.75 m ($CH_2$), 2.11 m (CH), 2.26 m (CH), 2.5 m ($CH_2$), 2.68 - 3.8 m (peptidic $CH_\beta$'s), 3.8 - 5.0 m (peptidic $CH_\alpha$'s), 5.45 - 6.17 s ($CH_2$), 5.58 d (CH double bond), 6.36 m (CH), 6.86 d (CH double bond), 7.0 - 7.45 m aromatic CH's).

D) When dissolved in $CD_3CN:D_2O$ (1:1), $^{13}C$ NMR spectrum (Fig.10) exhibiting the following signals (in ppm) at 600 MHz using $CD_3CN$ as internal standard (1.39 ppm), [δ=ppm; (attribution)]: 13.6 - 23.03 (aliphatic $CH_3$'s), 25.69 - 77.9 (aliphatic $CH_2$'s and peptidic $CH_\alpha$'s), 105 - 137.3 (aromatic and double bonds CH's and quaternary carbons), 165.6- 176.6 (peptidic carbonyls).

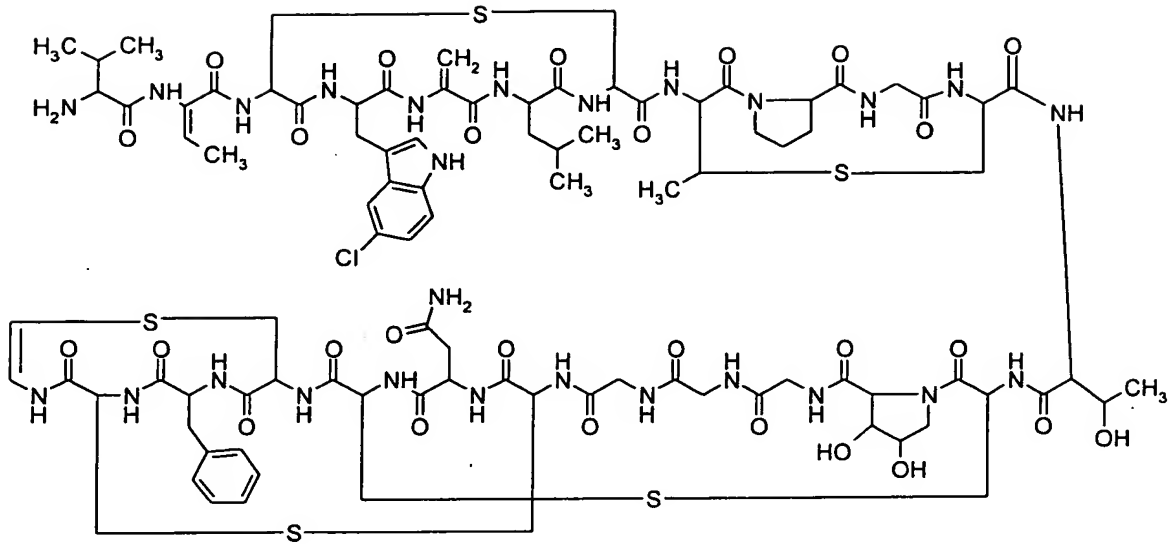
E) Infrared spectrum recorded in KBr with a Bruker FT-IR spectophotometer model IFS 48 (Fig. 12) exhibiting absorption maxima at ($cm^{-1}$): 3294; 3059; 2926; 1661; 1529; 1433; 1407; 1287; 1114; 1021.

F) U.V. spectrum recorded in methanol:$H_2O$ (in ratio 80:20) with a Perkin-Elmer spectrophotometer Lambda 16 (Fig. 13) exhibiting two shoulders at 226 and 267 nm.

G) The acid hydrolysate in 6N HCl, (105°C, 24 h) showing the presence of the following amino acids, along with other unidentified peaks, after derivatization with 6-aminoquinolyl-N-hydroxysuccinimidyl carbamate: lanthionine, methyllanthionine, glycine, proline, valine, aspartic acid (hydrolysis product of asparagine), phenylalanine, and leucine.

H) The acid hydrolysate in 4N methanesulfonic acid containing 0,2% (w/v) 3-(2-aminoethyl)indole as catalyst (115°C, 16h) showing the presence of 5-chlorotryptophan.

3. Antibiotic 107891 Factor A1 according to claim 2 which can be tentatively assigned the following structure formula:



4. Factor A2 of antibiotic 107891 being a white powder showing:

A) A doubly protonated ion at m/z 1116 corresponding to the lowest isotope composition in mass spectrum recorded from a 0,1 mg/ml solution in acetonitrile:water 50:50 (v/v) with acetic acid 0,5% (Fig. 7A and 7B) on a Thermofinnigan LCQ deca instrument fitted with an electrospray source, using Thermofinnigan calibration mix under the following electrospray conditions: spray voltage: 4.7 kV; capillary temperature: 250° C; capillary voltage: 8V; infusion mode 10 µl/min.

B) The exact mass determined by using a Bruker Daltonics APEX II, 4.7 Tesla spectrometer fitted with an electrospray source, corresponding to a molecular weight of 2230.71±0.06, calculated monoisotopic mass from $[M+2H]^{2+}$ at m/z 1116.36260 (accuracy 30 ppm).

C) When dissolved in $CD_3CN:D_2O$ (1:1), $^1H$ NMR spectrum (Fig. 9) exhibiting the following signals (in ppm) at 600 MHz using $CD_3CN$ as internal standard (1.94 ppm), [δ=ppm, multiplicity; (attribution)]: 0.84 d ($CH_3$), 0.88 d ($CH_3$), 0.94 d

($CH_3$), 1.06 d ($CH_3$), 1.14 d ($CH_3$), 148 m ($CH_2$), 1.65-1.75 m ($CH_2$), 1.67 d ($CH_3$), 2.15 m (CH), 2.25 m (CH), 2.5 m ($CH_2$), 2.77 - 3.8 m (peptidic $CH_\beta$'s), 3.8 - 4.9 m (peptidic $CH_\alpha$'s), 5.45 - 6.14 s ($CH_2$), 5.59 d (CH double bond), 6.34 m (CH), 6.84 d (CH double bond), 7.0 - 7.42 m (aromatic CH's).

D) When dissolved in $CD_3CN:D_2O$ (1:1), $^{13}C$ NMR spectrum (Fig.11), exhibiting the following signals (in ppm) at 600 MHz using $CD_3CN$ as internal standard (1.39 ppm), [δ=ppm; (attribution)]: 13.6 - 22.9 (aliphatic $CH_3$'s), 25.65 - 73 (aliphatic $CH_2$'s and peptidic $CH_\alpha$'s), 105 - 137.3 (aromatic and double bonds CH's and quaternary carbons), 165.7- 176.1 (peptidic carbonyls).

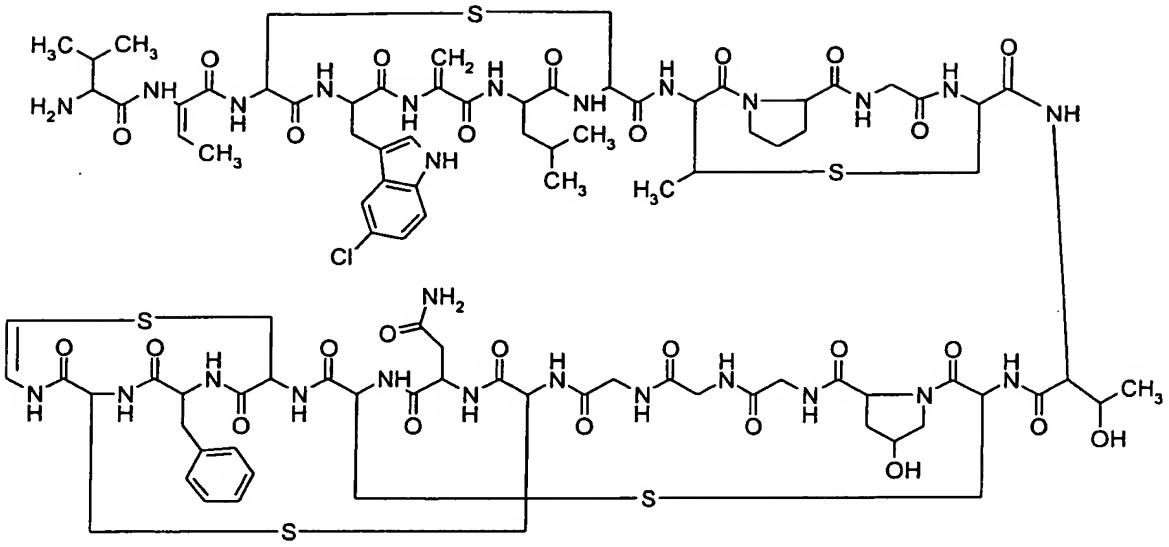
E) Infrared spectrum recorded in KBr with a Bruker FT-IR spectophotometer model IFS 48 (Fig. 14), exhibiting absorption maxima at ($cm^{-1}$): 3296; 3060; 2928; 1661; 1529; 1433; 1407; 1288; 1116.

F) U.V. spectrum recorded in methanol:$H_2O$ (in ratio 80:20) with a Perkin-Elmer spectrophotometer Lambda 16 (Fig. 15) exhibiting two shoulders at 226 and 267 nm.

G) The acid hydrolysate in 6N HCl, (105°C, 24 h) showing the presence of the following amino acids, along with other unidentified peaks, after derivatization with 6-aminoquinolyl-N-hydroxysuccinimidyl carbamate: lanthionine, methyllanthionine, glycine, proline, valine, aspartic acid (hydrolysis product of asparagine), phenylalanine and leucine.

H) The acid hydrolysate in 4N methanesulfonic acid containing 0,2% (w/v) 3-(2-aminoethyl)indole as catalyst (115°C, 16h) showing the presence 5-chlorotryptophan.

5. Antibiotic 107891 Factor A2 according to claim 4 which can be tentatively assigned the following structure formula



6. A process for producing antibiotic 107891 and its Factors A1 and A2 and the salts thereof with acids as defined in claim 1 which comprises :

- cultivating *Microbispora sp.* ATCC PTA-5024 or a variant or mutant thereof maintaining the ability to produce said antibiotic, under aerobic conditions, in an aqueous nutrient medium containing an assimilable source of carbon, nitrogen and inorganic salts;
- isolating the resulting antibiotic from the mycelium and/or the filtered fermentation broth;
- purifying the isolated antibiotic 107891 and, optionally, separating Factor A1 and Factor A2 therefrom.

7. A process according to claim 6, wherein the strain *Microbispora sp.* ATCC PTA-5024 or the antibiotic 107891 producing a variant or mutant thereof are pre-cultured.

8. A process according to any of claims 6 and 7, wherein the isolation of the antibiotic 107891 is carried out by filtering the fermentation broth and the antibiotic is recovered from the filtered fermentation broth according to a technique selected from: extraction with a water-immiscible solvent, precipitation by adding a non-solvent or by changing the pH of the solution, absorption chromatography, partition

chromatography, reverse phase partition chromatography, ion exchange chromatography, molecular exclusion chromatography, and a combination of two or more of said techniques.

9. A process according to any of claims 6 and 7, wherein the isolation of the antibiotic 107891 is carried out by separating the mycelium from the supernatant of the fermentation broth and the mycelium is extracted with a water-miscible solvent whereby, after the removal of the spent mycelium, a water-miscible solution containing the crude antibiotic is obtained, which can be processed either separately or in pool with the filtered fermentation broth according to claim 8 to recover the antibiotic 107891 by means of a technique selected from: extraction with a solvent, precipitation by adding a non-solvent or by changing the pH of the solution, absorption chromatography, partition chromatography, reverse phase partition chromatography, ion exchange chromatography and molecular exclusion chromatography, or a combination of two or more of said techniques.

10. A process as in claim 9 whereby the concentration of the water-miscible solvent in the mycelium extract is reduced before it is processed to recover the antibiotic therefrom.

11. A process according to claim 8 whereby the filtered fermentation broth is contacted with an absorption resin, preferably a polystyrene, a mixed polystyrene-divinylbenzene or a polyamide resin, and said resin is eluted with a polar, water-miscible solvent or a mixture thereof with water, whereby a solution containing the crude antibiotic 107981 is obtained.

12. A process as in any of claims 9 and 10 wherein the mycelium is extracted with a $C_1$-$C_3$ alkanol, preferably methanol, and the mycelium extract is contacted with an absorption resin, preferably a polystyrene resin, and eluted therefrom with a polar water-miscible solvent or a mixture thereof with water, whereby a solution containing the crude antibiotic 107891 is obtained.

13. A process as in any of claims 8, 9, 10 and 12, wherein the solutions containing the crude antibiotic 107891 are pooled and processed for further purification of said antibiotic 107891.

14. A process as in any of claims 11, 12 and 13, wherein the solution containing the crude antibiotic 107981 is concentrated and then freeze-dried to yield a crude antibiotic 107891 solid product.

15. A process as in any of claims 11 and 12, wherein the absorption resins containing the absorbed antibiotic are pooled and their mixture is eluted with a polar, water-miscible solvent or a mixture thereof with water.

16. A process according to any of claims 6 to 15 wherein the antibiotic 107981 is purified by means of a chromatographic procedure, preferably by preparative HPLC or medium pressure chromatography.

17. A process according to any claims 6 to 16, wherein Factor A1 and Factor A2 are separated by preparative HPLC from the purified antibiotic 107891.

18. A pharmaceutical composition comprising an antibiotic selected from antibiotic 107891, its Factor A1, its Factor A2 according to any of claims 1 to 5 and a mixture of said Factors in any proportion or a pharmaceutically acceptable salt thereof with an acid.

19. A pharmaceutical composition according to claim 18, comprising a pharmaceutically acceptable carrier.

20. The antibiotic 107891, its Factor A1, its Factor A2, according to any of claims 1 to 5 or a mixture of said Factors in any proportion or a pharmaceutically acceptable salt thereof with an acid for use as a medicament.

21. Use of antibiotic 107891, its Factor A1, its Factor A2, according to any of claims 1 to 5, or a mixture of said Factors in any proportion or a pharmaceutically acceptable salt thereof with an acid for the manufacture of a medicament for the treatment or prevention of bacterial infections.

22. Use of the antibiotic 107891, its Factor A1, its Factor A2 according to any of claims 1 to 5 or a mixture of said Factors in any proportion and a non-toxic salt thereof with an acid as animal growth promoter.

23. A biologically pure culture of the strain *Microbispora sp.* ATCC PTA-5024, or a variant or mutant thereof maintaining the ability to produce the antibiotic of claim 1 when cultivated under submerged aerobic conditions in the presence of assimilable sources of carbon, nitrogen and inorganic salts.